

RSOP, COVER, AND DECEPTION FOR ADA UNITS

SUBCOURSE NO. AD 0717

EDITION 6

THREE CREDIT HOURS

US ARMY AIR DEFENSE ARTILLERY SCHOOL
FORT BLISS TEXAS 79916

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GENERAL

This subcourse presents procedures, techniques, and operational methods for reconnaissance, selection, and occupation of position (RSOP) in connection with tactical deployment and employment of air defense artillery (ADA) units (Chaparral/Vulcan (C/V), Hawk and Patriot systems). The subcourse also describes the ways in which ADA units may secure some protection from enemy attacks through camouflage, movement, field fortification, and the use of deception measures such as dummy and decoy positions.

Lesson 1: RSOP, COVER, AND DECEPTION FOR ADA UNITS

TASK: This subcourse does not specifically relate to any enlisted or officer task, but provides general information on RSOP, cover, and deception for SHORAD and HIMAD units.

CONDITIONS: Use only the lesson material to complete the examination.

STANDARDS: You must attain a minimum grade of 70 percent on the examination to receive credit for this subcourse.

Unless otherwise stated, whenever masculine gender is used, both men and women are included.

ADMINISTRATIVE INSTRUCTIONS

SUBCOURSE CONTENT

This subcourse contains one lesson presenting procedures, technical, and operational methods for RSOP in connection with tactical deployment and employment of ADA units (C/V, Hawk, and Patriot systems). The subcourse also describes the ways in which ADA units may secure some protection from enemy field fortifications, and the use of deception measures such as dummy and decoy positions.

Supplementary Requirements

None.

Supervisory Assistance. There are no supervisory requirements for completion of this subcourse.

References. No supplementary references are needed for this subcourse.

GRADING AND CERTIFICATION INSTRUCTIONS

Three credit hours will be awarded for successful completion of the subcourse.

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LESSON 1 RSOP, COVER, AND DECEPTION FOR ADA UNITS

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REFERENCES

FM 44-3

FM 44-15

FM 44-90-1

Learning Event 1: PURPOSE

The purpose of a reconnaissance, selection, and occupation of position (RSOP) is to move an ADA unit from one position into another position from which the unit is able to deliver effective fire to accomplish its mission. Movements are accomplished as required to support the maneuver plan, to enhance survivability, and to respond to a change in mission. Decentralization of effort is usually necessary in conducting a rapid and effective RSOP.

Since the mission of most ADA systems can be performed only when they are in a static firing position, movement from one position to another must be conducted swiftly. The RSOP procedures have been developed to facilitate the rapid, orderly, and safe movement of ADA systems on the battlefield. The RSOP must be part of an ADA's standing operating procedure, be clearly understood, and be practiced repeatedly (under both day and night conditions) by all members of the unit.

Learning Event 2: METHODS OF RECONNAISSANCE

Reconnaissance is the examination of terrain to determine its suitability for accomplishment of the unit mission. There are three ways to reconnoiter-from a map, from the air, and from the ground.

Map Reconnaissance

Study and analyze a map to get an appreciation of the terrain, to determine where to go, and how to get there. A map reconnaissance-

- Is used as a basis for planning the reconnaissance.

- Precedes all other methods. A map reconnaissance should always be available for the area to be occupied.
- Is the fastest method. Large areas can be examined quickly.
- Is the most inaccurate method. The current conditions of the areas cannot be determined.
- Ensures the most security.

Aerial Reconnaissance

Use an aircraft for actually viewing the terrain. An aerial reconnaissance-

- Provides the fastest way to see the terrain in a short time.
- Is limited by aircraft availability, weather, and light conditions.
- Is also inaccurate. Fields of fire, ground conditions, and local threat cannot be determined unless the aircraft lands.
- Is less secure. Aircraft activity in an area exposes personnel to threat activity and also reveals our interest.
- Is often possible, though difficult, to reconnoiter terrain held by the enemy.

Ground Reconnaissance

Go to the locations to be examined. A ground reconnaissance-

- Is the most accurate method. The route can be evaluated for trafficability, obstacles, and danger areas. Firing positions can be finalized.
- Takes time. Covering the distances over potential routes and checking alternate positions is time consuming. This is the slowest method of reconnaissance.
- Is dangerous. The small reconnaissance party might be subject to threat activity en route to, in, and from the objective area.

Actual inspection of those routes and positions on the ground is desirable to confirm selections made from the map or to make necessary changes in plans ([Figure 1](#)).



Route Reconnaissance

If ground or aerial reconnaissance cannot be performed, engineer terrain teams may be able to provide necessary information. Plans can be made for the reconnaissance to include routes, release points, assembly points, and assembly times for the reconnaissance party. If time (which may be a factor for the type of reconnaissance conducted) is limited to the extent that the unit must move up before the reconnaissance party returns, road guard positions are selected and the necessary personnel for those jobs are included in the party.

Learning Event 3: RSOP SEQUENCE SHORT-RANGE AIR DEFENSE (SHORAD)

Since SHORAD units are most often employed as batteries and platoons, the RSOP will normally be accomplished at battery and platoon level. The RSOP procedures discussed here may not be fully applicable to SHORAD gun units or man portable air defense (MANPAD) supporting maneuver elements in contact with or moving to contact the enemy. Rather, they apply to batteries, platoons, and MANPAD sections engaged in the defense of other assets. However, the sequence of events and the basic procedures discussed herein will remain essentially the same for any RSOP. The basic sequence of actions for conducting the RSOP is as indicated below.

- Receive the order.
- Issue movement warning order.
- Make a map reconnaissance.
- Plan the reconnaissance.
- Brief next in command-issue orders.
- Conduct reconnaissance and select positions.

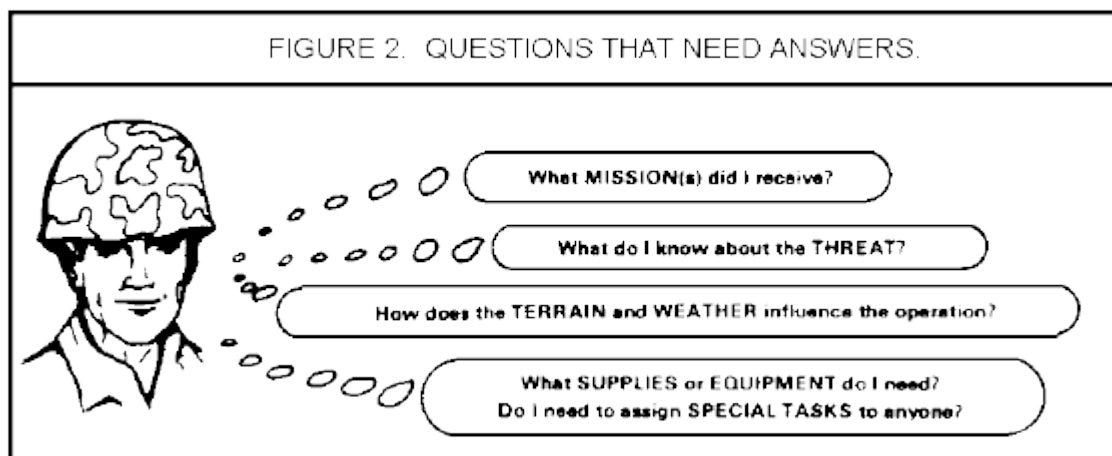
- Plan the occupation and prepare positions for occupation.
- Move the unit to the selected position.
- Occupy, organize, and improve positions.

Receive the Order (SHORAD Unit)

The commander meets with his key personnel and briefs them on the new mission and requirement to move. The briefing includes information on the purpose of the operation, routes, road clearance times, start and release point locations, and when to be operational in the new area. Each leader reviews briefing notes and then initiates the reverse planning sequence.

When you receive the warning order, think of the mission. Ensure that you understand what is to be done and plan the use of available time. Often, the most critical resource you have is "time," especially daylight hours, in which to prepare.

The most important part of receiving an order is knowing what your unit has to do in respect to the area and the other platoons or sections. Your chances of success are greatly reduced unless you know exactly what you are to do, what other units are doing, and where and when these actions are to be done. After hearing the entire order, do not leave the briefing area until all of your questions have been answered. When you receive the order and understand the plan, take a few minutes and review your notes. As you think about the order, ask yourself these questions ([Figure 2](#)).



Mission. Identify exactly what your unit is to accomplish. Be sure you know how much time you have to prepare. Are there any restrictions or special tasks that apply to your unit? The mission will influence reconnaissance and planning the most. A thorough understanding of the mission will allow you to make a time schedule for your preparations. You will be told what time the operation is to begin and when you must be ready to go. Identify the things that must be done, then work backwards from the "ready" time to allow your troops enough time to finish each task. This technique is called the REVERSE PLANNING SEQUENCE ([Figure 3](#)).

FIGURE 3. EXAMPLE OF REVERSE PLANNING SEQUENCE.

1420: Platoon leader said to be ready.
1415: Inspect assembly area.
1400: Inspect section preparations.
1315: Issue operation order to section.
1300: Finalize section operation order.
1200: Recon with platoon leader/receive platoon operation orders.
1100: Issue warning order to section.
1040: Receive platoon warning order.

Threat. Develop the best picture of the threat-where he is located, what his strength is, and what type of weapons and equipment he has. This applies equally to the ground and air threat. Tell your troops as much as you know about how to destroy or suppress the kind of enemy you are likely to meet. Sometimes the enemy will use the same pattern over and over in a certain area. For example, if you know that the enemy has been conducting ambushes around road junctions, tell your troops about it.

Terrain and Weather. Most decisions on movement routes, sectors of fire, primary target lines, equipment siting, and position selection depend on the terrain. Study every bit of ground to employ your men and equipment properly and gain an advantage over the enemy. The proper use of terrain will-

- Provide cover and concealment before, during, and after the operation.
- Increase the effectiveness of your fire.
- Decrease the effectiveness of enemy fire.

You must consider how the weather might influence the operation. Cold, heat, rain, or snow can create problems unless you properly prepare your men and equipment.

Supplies, Equipment, and Special Tasks. Look at your unit in light of the mission you are to accomplish. If your mission requires a special skill, such as a tactical air movement, do you know how to do it? Do you have the right kind of supplies and equipment? If you think you need help, or if you need something you don't have, tell the leader about it immediately.

Issue Movement Warning Order

The leader returns to his area and briefs his key personnel as soon as he can on the new mission and requirement to move. He tells the Non-Commissioned Officer In Charge (NCOIC) to form the reconnaissance party as indicated in the unit Standing Operating Procedures (SOP). The movement order can be written or verbal, and it can be passed on in person or by tactical communications.

It must include (as a minimum)-

- The new mission.
- The new location of the new area.

- Time and release for march order, crossing the start point (SP) and release point (RP), and assuming operational status at the new area.
- Time and place the complete operation order will be issued.

By knowing the mission and the area, you can make a decision as to how the unit can accomplish the mission. This is a tentative plan that can change as you go through the steps. It gives you a starting point that will be used as a basis for coordination, reconnaissance, reorganization, and movement.

Most new missions you receive will involve movement. Movement for ADA units begins when the unit is released from its AD mission. Although in some systems equipment cannot be prepared before this time, movement preparation can be performed on other pieces of equipment. If you are conducting the reconnaissance or otherwise outside the present area when these preparations are due to begin, make sure you have briefed your troops on what actions to take and when you will return.

Make a Map Reconnaissance

This is the fastest way to conduct a reconnaissance, and will always precede any other type of reconnaissance. The positions of weapons are plotted on a map and represent the best locations for defense, considering the guidelines in the unit's SOP and the nature of terrain insofar as can be determined from the map. Also check the map for alternate positions. After the weapon positions have been plotted on a map, positions for command posts and primary and alternate routes are selected and plotted. The commander determines the reconnaissance route by conducting a map reconnaissance to the proposed area. Positions must be examined by additional reconnaissance, if possible, and may change within narrow limits from positions selected by map reconnaissance.

Plan the Reconnaissance

Reconnaissance is performed to select the best battalion, battery, and fire unit positions; march routes; start and release points; command posts; ground air observer posts; and communications sites. Prior to or concurrent with reconnaissance, the SHORAD commander/S3 should coordinate with the maneuver commander/S3 to determine what areas the maneuver units plan to occupy. Mutual agreement must be established to make the best use of the available terrain.

The commander selects personnel and equipment to accompany him on the reconnaissance and assigns tasks to the reconnaissance party personnel. The unit SOP will establish the normal composition and responsibilities of the party.

The reconnaissance party personnel for C/V units may be as shown below.

- Platoon
- Platoon leader or platoon sergeant.
 - Representatives from each squad to act as ground guides and to provide security.
- Battery.
 - Commander (or OIC).
 - First sergeant (or NCOIC).

- Platoon leaders or platoon sergeants (if part of the battery movement).
- Representatives from squads.
- Communications personnel.
- NBC survey and decontamination teams (may also perform the duties of ground guide and security personnel).
- Mine detector teams (may also perform the duties of ground guide and security personnel).
- Road guides.
- Ground guides.
- Security personnel.

The ADA battalion tactical standing operating procedure (TACSOP) will normally include an RSOP annex. In addition to the normal displacement and march order procedure, it will include the following items:

- Composition and duties of the reconnaissance party.
- Vehicle loads, including personnel.
- Grouping of vehicles and group commanders.
- Organizations of columns.
- Sign posting and traffic control.
- Responsibility for manning the start point (SP) and the release point (RP).
- Discipline, halts, lighting.
- Action in the event of enemy attack.
- Drill for establishing headquarters.
- Responsibility for issuance of operation orders for movement.
- Inspection of located site for security purposes.
- Radiological survey party composition and procedures.

Brief Next in Command-Issue Orders

After the commander finalizes and coordinates the plan, he briefs his personnel covering all elements of a five-paragraph field order (situation, mission, execution, service support, and command/signal).

Situation. Information on threat and friendly forces. Include the mission and intended actions of at least your next higher headquarters and other ADA units in the area.

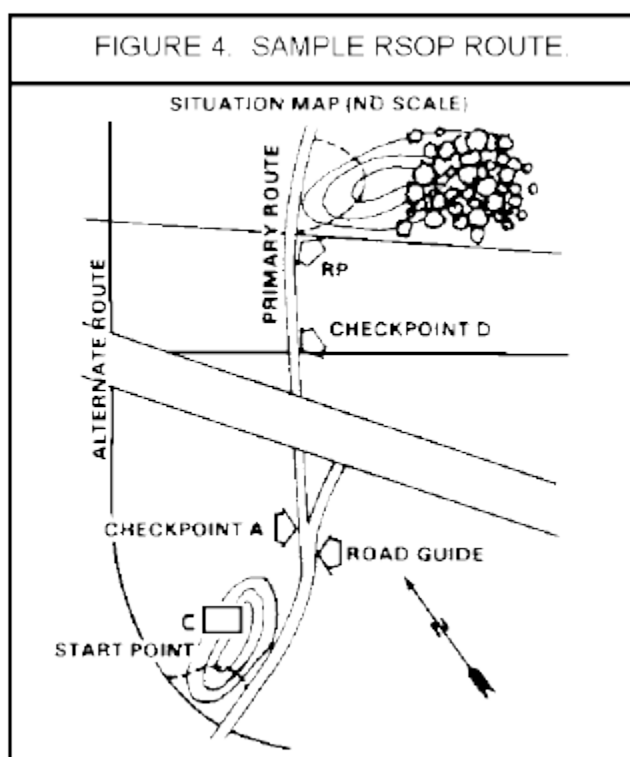
Mission. What your unit (battery, platoon, or section) is to do.

Execution. Your tactical plan to accomplish the mission. Include tasks for each platoon, section, or individual as necessary.

Service Support. Administrative information to include plans for ammunition, resupply, casualty evacuation, and rations.

Command and Signal. Radio frequencies, call signs, and control measures that will be used during the operation. Include where you plan to be, where the next higher leader will be, and who will be in charge during your absence.

Departure Time. Indicates when the RSOP party will depart the present position. He identifies, as a minimum, the start point and the release point ([Figure 4](#)).



His briefing and issuing of orders should include instructions on continued operations in the absence of key leaders.

Conduct Reconnaissance and Select Positions

As soon as RSOP preparations are complete, the leader departs with the reconnaissance party. He ensures that the selected primary route meets equipment requirements (height, weight, and width), is passable, and avoids built-up areas (possible ambush locations are minimized). He positions road guides as required. He may keep the main party posted on his progress by referencing checkpoints. As the RSOP party approaches the new field location, a check of the area is made. It must be determined if the tentative map-selected locations will allow immediate occupation for accomplishment of the mission. Ground reconnaissance verifies whether the terrain provides good natural concealment, has

access roads into the primary and alternate routes, and has firm ground that will support the weight of the equipment.

NBC survey and mine detection teams check the immediate area to ensure it is free of contamination and mines. A local security plan is then placed in effect. This includes positioning automatic weapons overlooking the main avenue of approach and alternate routes into the position, and siting other security positions around the area to preclude gaps in the perimeter. A primary target line and a sector of fire are assigned to each weapon squad or team and communications are established with all the positions. Initial positions plotted during the map reconnaissance should be adhered to as closely as possible. Squad representatives reconnoiter the positions assigned to their weapons, select tentative sites for the weapons and observation posts, and confirm them with the platoon leader. The platoon leader reconnoiters the platoon area and selects the site for the platoon CP. If time permits, he visits each proposed weapon site and supervises and assists the squad representatives. After approving the weapon sites, the platoon leader informs the battery commander or battalion S3 and supported unit, as appropriate, of the weapons and platoon command post sites.

Positions selected must be the best available for fields of fire, communications, accessibility, and survival. Specific characteristics that must be considered in selecting sites for battery and platoon command posts are as follows:

- Centrally located with respect to battery and platoon units.
- Cover and concealment available.
- Sufficient area for dispersion.
- Alternate entrance and exit routes.
- Defendable against ground attack.
- Communications possible with higher, lower, and defended units.

The following are characteristics which must be considered in selecting sites for weapons squads:

- Primary and secondary fields of fire and observation must be clear.
- Communications with platoon CP, other squads in the platoon, and with early warning sources, if possible.
- Good access and exit routes.
- Security against ground routes.
- Must be within stated distance according to SOP of plotted positions in original defense design (for example, 100 meters for Vulcan, 300-400 meters for Stinger and Chaparral).
- Maximum use of available cover and concealment to facilitate survivability.

The firing signature of the Chaparral, firing only MIM-72A and MIM-72C missiles, and of Vulcan can be expected to disclose the weapon's position during each engagement; therefore, frequent shifting of

position is required. Primary, alternate, and supplementary positions are selected during the ground reconnaissance.

- Primary position-a place for a weapon, ADA unit, or individual to fight which provides the best means to accomplish the assigned mission.
- Alternate position-a place located generally adjacent to the primary position from which a weapon, a unit, or an individual can perform the original task when the primary position becomes untenable or unsuitable.
- Supplementary position-a site which provides the best means to accomplish a task that cannot be accomplished from the primary or alternate position.
- Dummy position-a position designated to resemble a real AD position. It is intended to mislead the enemy as to the location and number of air defense units. Dummy positions are constructed as part of an overall deception plan. Engineer units may construct and move dummy equipment as required to counter enemy intelligence systems as part of the force commander's plan for counterintelligence and deception.
- Decoy positions-very similar to the dummy position; the difference being in purpose and degree of authenticity.

A decoy position is intended to cause the enemy to commit an action which may result in an advantage to friendly forces; for example, a decoy installation may be constructed with the objective of enticing the enemy to mount an air attack against it. The enemy aircraft may then be surprised and destroyed by well-hidden weapons.

Routes into and out of these positions must be selected and prepared as necessary.

Plan the Occupation and Prepare Positions for Occupation

After the leader has selected the equipment sites, he ensures that the ground guides know exactly where he wants all the vehicles and equipment placed. Preparation should always include marking the location of each major piece of equipment. Everyone at the new position is notified of the current challenge and password, any known enemy activity in the area, and the approximate time, location, and order of vehicles for the main party.

Move the Unit to Selected Positions

The main party convoy commander organizes the vehicles as ordered by the unit commander. In C/V units, Vulcans are integrated to provide air defense coverage en route and to complement the ground defense plans. If the battery is operating independently, the order for displacement will be received from the supported unit commander. The commander displaces the unit and road marches it to the new location according to procedures that are outlined in local SOPs.

Occupy, Organize, and Improve Positions

The occupation of positions should be coordinated with the supported unit to avoid mutual interference. When the battery or platoon arrives at the position area, all vehicles are moved off the road into the

position area without halting and without closing the interval between vehicles. A ground guide leads each vehicle to its predetermined location, and equipment is unloaded quietly and in an orderly manner.

The displacement and occupation should be accomplished as rapidly as possible to minimize the time that weapons are out of action. When occupying platoon positions, first priority should be given to emplacing primary weapon systems and bringing them to a ready-for-action condition. When all weapon squads have reported that they are ready, the platoon leader will report the platoon ready for action.

Squad leaders establish certain priorities for the improvement of positions. The normal sequence is as follows:

- Primary positions should receive high priority for improvement.
- Natural cover is supplemented where possible, using artificial materials such as camouflage nets.
- Personal prone positions are prepared at the earliest possible opportunity and replaced by foxholes and dugouts as time permits.
- Chaparral and Vulcan are protected from blast, fragmentation, and small arms fire by digging in or constructing revetments. Engineer support may be required in some situations and should be requested through the battalion S3. Care must be taken to ensure that revetments do not impede full employment of the weapons.
- Ammunition must be protected by being dug in or revetted and protected by overhead cover.
- Work on alternate and supplementary positions is initiated as early as possible to expedite displacement in the event the primary position becomes untenable.

Upon occupying a position, the battery commander or platoon leader must provide for continuous local security. Measures taken should be integrated, if possible, with the ground defense plan of the supported unit. If time permits, range cards should be constructed for each crew-served weapon that can be used in ground defense. These cards should indicate ranges to critical points on all likely avenues of approach, dead spaces not covered by direct fire, and limits of the gunner's responsibility. Radar clutter and coverage diagrams must be prepared as required by the battalion sensor management plan.

Learning Event 4: RSOP FOR THE GROUND FIRE SUPPORT ROLE

When the ground threat exceeds the air threat, or as the force commander elects, ADA automatic weapon units (Vulcan) may be used in the ground fire role. The methods outlined in this section apply to all types of ground support employment, whether in support of infantry units in the offense or defense, in counter guerrilla or stability operations, or in airborne and airmobile operations. The primary consideration is to select weapon positions which will permit optimum utilization of firepower in support of ground operations. When Vulcan units are assigned the ground fire support mission, they will be in direct support of the maneuver units. The ADA commander will act as an advisor to the

supported commander and reconnoiter and occupy positions in accordance with the guidance of the supported unit commander.

The ADA commander should be briefed by the supported unit commander on the general plan of operations, fire support required, location of friendly units, location of known and probable enemy targets, and coordinates of the desired squad positions. A map reconnaissance, followed by a ground reconnaissance, will be constructed to ensure that-

- Weapons are sited within mutual supporting distance of adjacent air defense automatic weapons and/or weapons of the supported unit.
- Maximum effective direct fire capability of the weapons against ground targets is used.
- A base of direct fire for the supported unit is provided.
- Key terrain features are protected.
- Essential observation is provided.
- Enemy close observation into the defended area is denied.
- Positions are located so as not to interfere with fields of fire of other weapons.
- Maximum advantage is taken of natural cover and concealment.

Occupation of position should be coordinated with the supported units to avoid interference with the movement of other units. Displacements should be conducted to take advantage of maximum cover and concealment. Night occupation of position should be standard procedure.

Learning Event 5: RSOP SEQUENCE (HAWK)

Operation Order (OPORD)

The purpose of an OPORD is to give subordinate commanders the essential information needed to carry out an operation. This includes the situation, mission, assignment task, and support and assistance to be provided. When an operation is to be conducted immediately, the complete order, or a series of fragmentary orders, is prepared based on the commander's decision and concept. When a future operation is planned, an operation plan (OPLAN) is prepared to be executed by appropriate implementing instructions or the issuance of a fragmentary order. Fragmentary orders are the normal means of issuing changes to operation orders. A new order is published whenever a significant change in the mission occurs or a new mission is received, as time permits. Orders should include only the necessary detail for subordinate commanders to issue their own order and to ensure coordination. This coordination must include a listing of primary and secondary positions to ensure flexibility in the occupation of the positions identified in the defense planning process.

Warning Order

Warning orders are issued to give subordinate units advance notice of a contemplated order which is to follow. They are intended to help units and their staffs initiate the preparations for execution of a mission by giving them the maximum warning time available and the essential details of impending

operations including planning time available. When used to alert units of a movement or implementation of an OPLAN or an OPORD, the warning order should state an implementation time. When a warning order is received, Hawk unit commanders initiate action to prepare their units for movement. The commander-

- Briefs all key personnel and issues the warning order.
- Directs preparation for travel of all equipment not needed to maintain the engagement capability of the Hawk system.
- Reviews his operation order.
- Instructs his RSOP leader on the route of march, alternate route of march, checkpoints, call signs and frequencies, RSOP party composition if not according to SOP, and any peculiarities of the movement and position being reconnoitered.

Reconnaissance and Selection (Routes and Sites)

This part of the lesson describes the basic actions required in the conduct of the reconnaissance and selection of the route and equipment sites in the position. These basic actions are modified to fit the tactical situation under which the movement is to be conducted. These procedures are flexible enough to fit any situation, and the commander tailors these general procedures to the individual and collective proficiency of the unit.

The primary purpose of reconnaissance and selection of routes and sites is to facilitate orderly, rapid, and safe movement to and emplacement at the designated position. This is accomplished by reconnoitering and selecting primary and alternate access routes and sites for unit equipment and facilities within the position.

The reconnaissance of the routes of march and equipment sites is accomplished by the RSOP party. The RSOP party is assembled and briefed and departs the unit location immediately after receipt of a warning order.

Normally, the RSOP party's organization and equipment are established by SOP to fit most tactical situations. When issuing the movement warning order to the RSOP leader, the commander should direct any changes he feels necessary. While the RSOP is being conducted, the fire unit will normally continue to conduct air defense engagements. The actions taken to form up the RSOP party and to prepare equipment for travel must not affect the mission capability of the fire unit.

The following are the minimum necessary personnel required in an RSOP party and their duties:

- Officer in charge. The officer in charge (OIC) has overall responsibility for the RSOP party. He must ensure that the party is properly briefed. He verifies the acceptability of the new position and is responsible for the detailed layout of the new position. The OIC is normally a commissioned officer but may be a senior NCO.
- Noncommissioned officer in charge. The noncommissioned officer in charge (NCOIC) assists the OIC and ensures that the new position is properly cleared of mines and secured prior to entry of the main RSOP party. He will ensure that local security is maintained, a chemical and

radiological survey is conducted, and the parent battery or platoon is notified of the acceptability of the position(s) and route(s). The NCOIC must also reconnoiter alternate routes and provide such information to the parent unit.

- Security team. The size of the security team is based on the tactical situation but is normally not less than a squad-size force. The security team will provide security for the RSOP party under the direction of the NCOIC. At least one security team member will be a tactical wire operations specialist.
- Equipment guides. Each major piece of equipment will have an assigned guide. During the RSOP party's entry into the new position, the guides assist the OIC in the layout and also form a minesweeping team and chemical and radiological survey team. The guides will be used as a reaction force during reconnaissance if needed.
- Communications personnel. Normally, a UHF operator and a tactical radio operator work together in erecting both the RC-292 antenna group and the UHF antenna mast set.

Sufficient equipment must be provided to ensure accomplishment of reconnaissance, layout, and security of the new position. The following list of equipment is normally required for the fire unit RSOP party:

- Truck cargo: 2 1/2- or 5-ton 6 by 6.
- Truck utility: 1/4-ton 4-by-4 with radio set, AN/VRC-46.
- Detecting set mine, portable, metallic and nonmetallic.
- Detecting set mine, portable, metallic, AN-PSS-11.
- Alarm, chemical agent, automatic, portable with PWR (power) supply for 1/4-ton truck.
- Radiacmeter, IM-174/PD.
- Telephone set, TA-312/PT.
- Antenna group, RC-292.
- UHF antenna mast set.
- Cable telephone, WD-1.
- Measuring tape.
- Marking stakes.
- M2 aiming circle.
- Equipment for preparation of coverage diagrams.
- Binoculars.
- Camouflage screen system.

- Individual weapons and ammunition for all personnel, including M-203s for two equipment guides (reaction force).
- Individual protective and load bearing equipment.
- Machine gun, 7.62-mm, with tripod.
- Night-vision sight, individual served weapon, AN/PVS-4.
- Sufficient rations and water for three days.
- POL.

En route reconnaissance to the new position, the RSOP OIC must determine whether the route is acceptable. The OIC considers-

- Overhead clearance.
- Route security.
- Roadway trafficability.
- Roadway width.
- Bridge classification.
- Fording sites.
- Areas available for dispersion.
- Cover and concealment.
- Easily distinguishable landmarks.

Guides are posted at turns which cannot be easily identified by landmarks. Road guides are an additional manning requirement for the RSOP party and will be picked up by the last vehicle from the parent unit. Equipment guides should not be used as road guides.

When reaching the access road leading into the new position, all RSOP personnel must mask and dismount. Two equipment guides will use the mine detectors to clear the access road, and two other guides will survey the area for radiological and chemical contamination. All vehicles are tactically dispersed but should not enter the position itself because the surveying and securing of the position must be conducted as covertly as possible. Two security personnel provide security for the minesweeping and survey teams.

As soon as the position is secured and determined to be free of contamination, the remainder of the party moves forward, and the security team, under the supervision of the NCOIC, establishes a defensive perimeter. Wire communications are established between the command post site and the perimeter bunkers.

If the RSOP party encounters enemy forces en route to or at the new position, they must not become decisively engaged but must immediately break contact. When contact is broken, the commander is advised of the situation and issues a fragmentary order directing movement to another position.

If chemical or radiological contamination is present, the RSOP party must move to a concealed position and notify their commander.

Selection

The position selection includes determining acceptability and site layout.

Determining Acceptability. Many requirements and factors must be considered in determining the acceptability of the tentative position. Once determined to be suitable, the OIC informs the parent unit over FM radio. This transmission must be short to preserve security of the new position. Should the position be found unacceptable, the OIC may reconnoiter alternate positions. He also may be given authority to reconnoiter positions within a given distance of the unacceptable position. The distance to which the OIC may go for a suitable position must be specified in the unit's SOP and is usually no more than 5 km. The battery must notify the battalion S3 so that the impact of subsequent positions on the overall defense can be assessed. The tentative position must be judged on the basis of the following factors:

- Size of the area. Hawk deployed as a full battery requires an open area measuring approximately 650 meters by 220 meters for maximum dispersion. An assault fire platoon requires only 410 meters by 190 meters.
- Maximum allowable slope. All items of the Hawk system must be emplaced on no greater than a 10 degree slope.
- Field of view. Radar field of view is extremely important in the sector of fire.
- Field of fire. Hawk launchers are programmed during emplacement to shoot over or around obstructions. However, these fire cutouts do affect the missile performance and do lengthen emplacement times. Launchers should be oriented toward the primary target line (PTL) and obstructions should be avoided, especially in the sector of fire.
- Concealment. Woodlines and built-up areas adjacent to the position can provide concealment for the missile and vehicle parking, mess, administration, bivouac, and latrine areas.
- Surface firmness. The composition and drainage of the area should be such that Hawk equipment can be supported by the ground surface in a level attitude. The effect of weather on surface firmness must be considered for both the site and its access routes.

Laying Out the Site. Site layout is accomplished by the OIC. The primary considerations for site layout are-

- Orienting of fires in the direction of the primary target line (PTL).
- Dispersion of equipment.
- Cable lengths.
- Line of sight for alignment.
- High terrain for the continuous wave acquisition radar (CWAR).

- The PCP/ICC doors facing away from pulse acquisition radar (PAR) and range only radar (ROR).
- Generators and high-speed engines are masked from line of sight with all CW radars.

During the site layout, the OIC will also establish a known reference point (KRP) for the base piece of equipment (normally the PAR, CWAR, or identification, friend or foe (IFF), in that order) by selecting a prominent terrain feature. The azimuth to the terrain feature is measured, using grid north as the reference point. Two KRPs must be provided to the radar operator, one for day use and one for night use. The M2 aiming circle is used to determine the azimuth to the KRPs.

Prior to the arrival of the main body and after completing site layout, the RSOP OIC prepares a hasty radar coverage diagram for the HIPAR. ACCP 0782 provides instructions on preparation of radar coverage diagrams. The OIC also selects MANPAD positions.

Preparation for Travel

The movement of a Hawk battery begins at the time specified in an OPORD or fragmentary order. The unit may also move out by infiltration or by platoon (echelon).

The time during which the Hawk unit is out of the air battle begins with the time the unit is released from the AD mission and ends with the completion of the "Move and Shoot" checks. At release time, all equipment is prepared for travel and loaded. Vehicles are hooked up to their assigned towed loads, marshalled, and moved out of the area in the designated order of march.

The preparation for travel of equipment is one of two areas where significant amounts of time can be saved. This saving depends on the quality, type, and amount of training. Preparation for travel must be exercised regularly. Because most Hawk moves will be conducted at night, training must be done under blackout conditions. The order of march is established to allow orderly access into the position based on new equipment sites and for the arrival of critical items of equipment (see minimum engagement capability, later in this lesson).

Vehicles must remain dispersed until the convoy is formed. Prior to departure, the drivers and air guards of each vehicle are briefed on the route of march, actions to be taken upon ground and air attack, convoy speed, planned halts, and actions to be taken when vehicles break down. During the briefing, prepared strip maps showing the route of march are also distributed.

Road Movement

Since Hawk units are vulnerable to attack during road movement, radio silence should be maintained to prevent the enemy from discovering and attacking the convoy. It is important for vehicle drivers to maintain open-column intervals and for drivers to know what actions to take under various combat conditions.

Upon arrival at the new position, the convoy is met at the entry control point by the RSOP OIC. The OIC escorts the commander or platoon leader to a position from which he can supervise the occupation and render assistance.

Occupation

The occupation is the second area where significant time can be saved. Movement of the convoys into the new position must be fast and smooth. The unit is extremely vulnerable at this time and the occupation must be well organized. Each vehicle is met at the entry control point by an equipment guide and led to its selected position. As soon as vehicles are unloaded, they should be guided to the motor park or other designated point. Equipment should be unloaded quietly, quickly, and orderly. Noise should be held to a minimum so that commands and other necessary instructions may be heard. Previous training will keep these instructions to a minimum.

Practice in night occupation of position is necessary to ensure smooth operation. When time and the situation permit, daylight reconnaissance should be made by all key personnel, including drivers. This may be accomplished by shifts to reduce the size of the party. The number and location of road guides required should be determined, and plans for local security on the march and in the new position should be made. Night occupation of position is facilitated when adequate guides are made available. Guides should know the location of each position in the area. In making reconnaissance prior to a night occupation, marking stakes are used to identify tactical equipment positions. An identifying tag or tape with lettering that can be read under blackout conditions is attached to each position stake. Night occupation also may be facilitated by accomplishing certain other tasks during daylight when time allows. Some of these tasks are-

- Leveling tactical equipment.
- Laying wire.
- Constructing equipment parapets and digging foxholes.
- Preparing the CP.
- Installing light reflection devices on equipment position stakes.
- Marking with white tape the routes within the position.

A night occupation requires more time than a daylight occupation. In addition, there is an even greater need for order and efficiency in a night occupation. No attempt should be made to hasten the operation until all personnel are capable of performing their duties in darkness. Particular care is necessary in guiding vehicles during blackout. Immediate corrective action must be taken to overcome violations of light and sound discipline.

Equipment guides must be equipped with flashlights with blue or green lenses (red lenses can be easily detected with infrared devices). Night occupations are conducted under blackout conditions. Radio silence should be maintained until the unit is fully prepared to conduct engagements. MANPAD teams are deployed to the selected firing sites when light and weather conditions permit.

Once the main body reaches the position, all unit efforts are focused on rapidly attaining a minimum engagement capability. To accomplish this, unit personnel are assigned specific emplacement tasks. Teamwork is the key to becoming mission capable as rapidly as possible. The only personnel not assigned emplacement tasks are the security forces.

Position Improvement

This phase of Hawk movement begins only after minimum engagement capability is attained and includes actions ranging from erecting camouflage screens to construction of revetments. Improving the position is continued as long as the position is occupied. Normally, positions are not occupied long enough to make the construction of revetments feasible unless engineer equipment is readily available.

The most important means of avoiding visual detection is through camouflage and concealment of equipment and personnel.

Learning Event 6 DISPLACING A HAWK ASSAULT FIRE PLATOON (AFP)

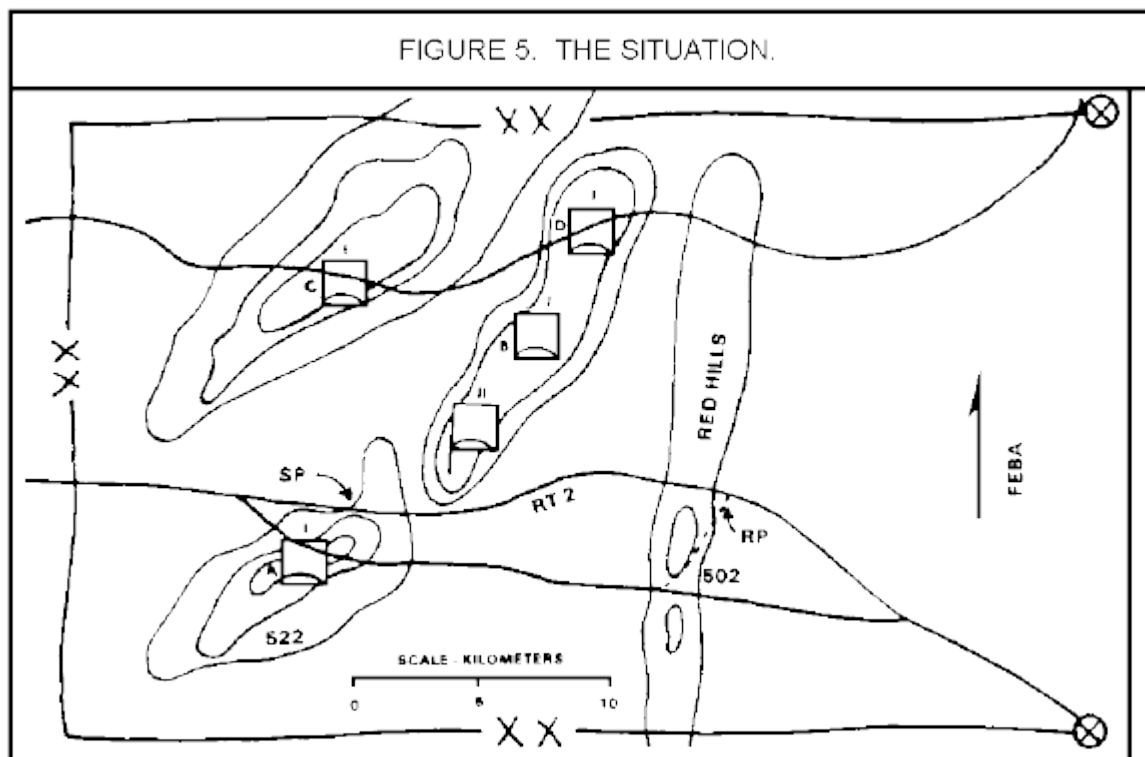
This portion of the lesson outlines and explains the basic actions required to move a fire unit into a new position. The basic actions can be modified to fit the specific tactical situation, but none can be omitted. For example, a road movement of a Hawk assault fire platoon (AFP) is discussed to portray the RSOP phases used; conducting the reconnaissance; selecting the position; road movement; and occupying, organizing, and improving the position.

Your unit will displace frequently, whether deployed in forward or rear areas. The mission can be performed only when the unit is in position and ready to fire. Time required for movement is out-of-action time. Yet, one must move frequently to perform the mission and survive on the battle field. Therefore, your unit must be able to move its position in the shortest time possible.

The SOPs for RSOP must be part of every unit's tactical preparation. They must also be thoroughly understood and practiced repeatedly by unit personnel. The SOPs must cover both day and night movements and occupation of positions. They should include loading plans for each way in which the unit might be moved-rail, sea, air (both cargo aircraft and helicopter), and road. The SOPs must also be adaptable in terms of unit size-movement, by platoon element (infiltration), platoon, battery or battalion.

Situation

A square Hawk battalion assigned to an ADA brigade is participating in a belt defense. Six hours ago the battalion received word to deploy its unit to newly assigned positions. This includes the movement of "A" Battery's AFP from its present position at Hill 522 to Hill 502 (see map). After directing his staff to coordinate with divisional elements also in the area, the battalion commander briefed the "A" Battery commander on his mission. The battery commander then returned to his unit and prepared to brief his key personnel ([Figure 5](#)).



How to Conduct the Reconnaissance and Select the Position

The basic actions required to conduct the reconnaissance and select the position follow the six steps of the troop leading procedures below.

Receiving the Movement Warning Order. At 1535 the battery commander met with his key personnel and issued the movement warning order. His briefing included, "...The battalion must be prepared for combat by beginning morning nautical twilight (BMNT), 0445 tomorrow. Our AFP will move to position on Hill 502 tonight. This will increase low-altitude coverage of the division's maneuver elements, but we will still be participating in the Hawk belt. We must take all precautions to prevent tipping the enemy off about our movement, so make minimum use of radios. We have road clearance on Route 2 from our present position to Hill 502. We also have position clearance for the hill itself from our liaison officer at the division TOC. The AFP will be released for movement at 1900. Your start point is on Route 2 at coordinates MV359155; your release point is at the intersection of the access road with Route 2-coordinates MV463161. The platoon will cross the start point at 1950-ending evening nautical twilight (EENT). You should clear the release point about 2110. Be ready to assume battle stations not later than 2310. LT Smith (the AFP platoon leader) will lead the reconnaissance party with the XO's jeep and driver. I will remain here at the location. LT Smith, after you have briefed your platoon, meet with me back here and we will complete our plans. I want the reconnaissance party to leave in 30 minutes.

After hearing the warning order, LT Smith took a few minutes to review the notes he had taken. Then, using the reverse planning sequence, he made a timetable as follows:

AFP TIMETABLE

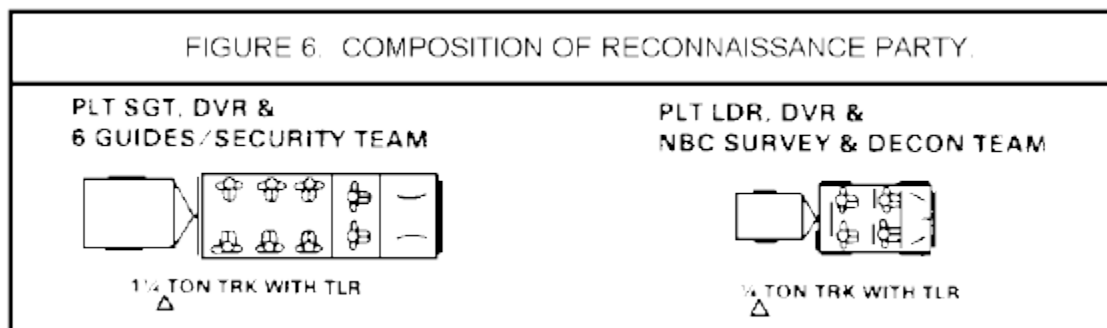
| <u>EVENT</u> | <u>TIME</u> |
|-----------------------------|-------------|
| Assume battle stations | 2305 |
| Cross release point (RP) | 2105 |
| Cross start point (SP) | 1950 |
| Released for march order | 1900 (EENT) |
| Reconnaissance party leaves | 1620 |
| Received warning order | 1550 |

Issuing the Platoon Warning Order. LT Smith returned to his platoon area and briefed his assistant platoon leader, platoon sergeant, and two section chiefs on the new mission. After giving his key personnel all the information he had received, LT Smith told the platoon sergeant to form the reconnaissance party by platoon SOP. LT Smith then returned to the battery command post (CP) to complete his plans with the battery commander. The movement warning order can be written or verbal, passed on in person or over tactical communications, and must include as a minimum-

- The new mission.
- The location of the new area.
- The time of release for march order, crossing the SP and RP, and assuming operational status at the new area.

Planning. The battery commander and LT Smith then began to complete their plans. They determined the reconnaissance route by conducting a map reconnaissance of the proposed area. They also checked the map for nearby alternate positions the AFP could use if the designated location was unsuitable.

LT Smith then briefed the battery commander on the makeup of his reconnaissance party. His SOP called for it to be composed of the elements shown in [Figure 6](#).



To increase his security while on the move and at the new location, LT Smith planned to take two M60 machine guns, one 50-cal. machine gun, and two M203 grenade launchers from the battery headquarters. These weapons, and the XO's jeep (with its AN/VRC-47 radio and driver), were the only assets outside of his platoon that LT Smith would need for the RSOP. Planning the RSOP includes-

- Deciding on routes to be used and areas to be examined.
- Deciding on the composition of the reconnaissance party.
- Deciding what extra supplies/equipment will be needed.

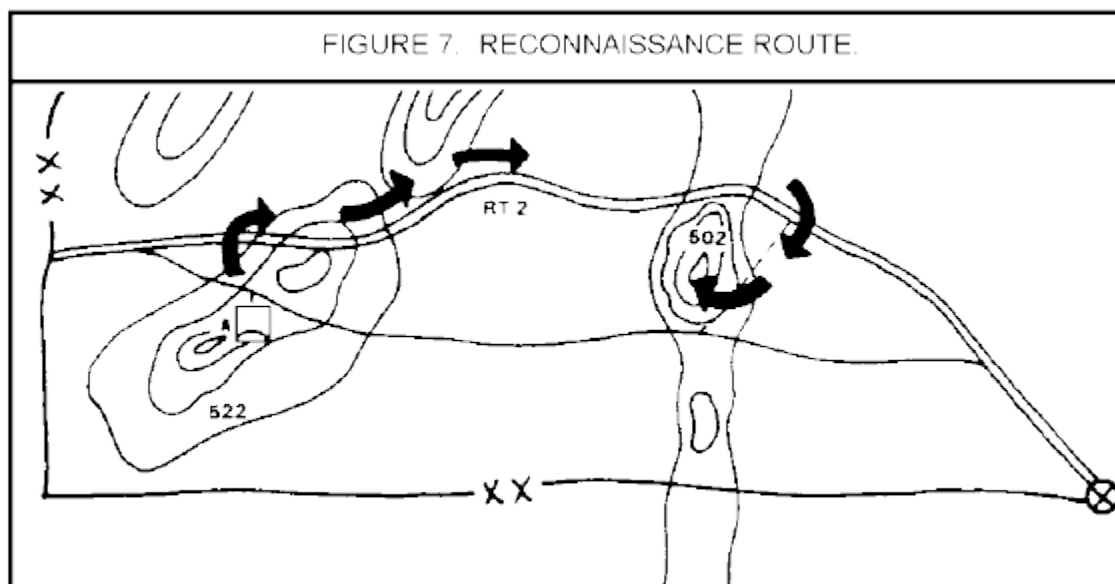
Preparing for Movement. After the battery commander had approved his plans, LT Smith returned to his platoon and briefed his personnel on movement preparations. His briefing covered all elements of the five-paragraph order and concluded with-

"...The platoon sergeant and I will be leaving with the reconnaissance party right after this briefing. The assistant platoon leader will be in charge here while I am gone. I will be back prior to the time you depart to lead you to the new locations. I will be monitoring both the battalion and battery command nets, but do not contact me unless an emergency comes up or you get a change in movement plans from the battery commander."

Preparing for movement must include briefing personnel on the mission, plans, and requirements and instructions on operations in the absence of a leader.

Reconnoitering and Selecting the Position. When he had completed his briefing and issued the necessary orders, LT Smith left with his reconnaissance party to make the reconnaissance and select the position.

The reconnaissance party moved out at 1620 along Route 2 as planned. LT Smith checked the route as he traveled, ensuring that it was passable with platoon vehicles and was clearly defined on the map. No obstacles were encountered on Route 2, or at road junctions, which would require road guides or road markers ([Figure 7](#)).

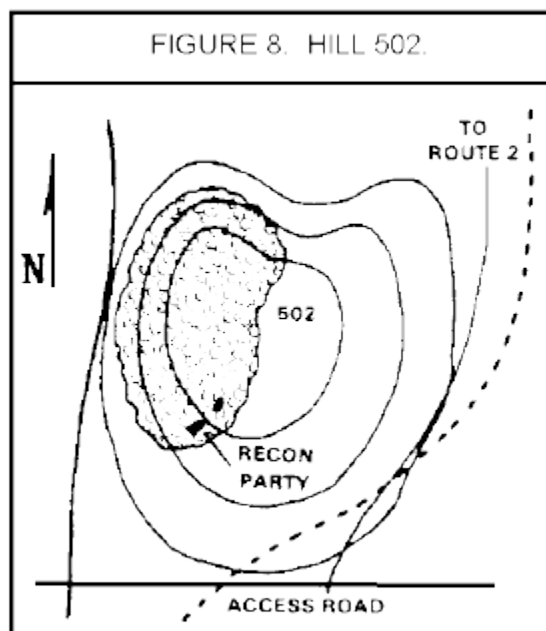


The route reconnaissance includes-

- Ensuring routes meet equipment height, weight, width, and depth (if fording) requirements.
- Avoiding built-up areas.

- Noting possible ambush locations.
- Marking necessary fuel and rest stop locations.
- Determining if road markers or road guards are needed.
- Finalizing the route.

LT Smith made a visual check of the area as the reconnaissance party approached Hill 502. He saw that the position would allow immediate occupation, provide concealment, and afford good radar coverage. He selected an area on the forward slope of the hill. The western part of the hill was wooded; the eastern part (the forward slope) was an open field. There was an access road up to the area. The ground in the area was firm and dry and would easily support the weight of the platoon equipment. LT Smith told his drivers to park the party's vehicles in the tree line ([Figure 8](#)).



The position reconnaissance ensures that the position-

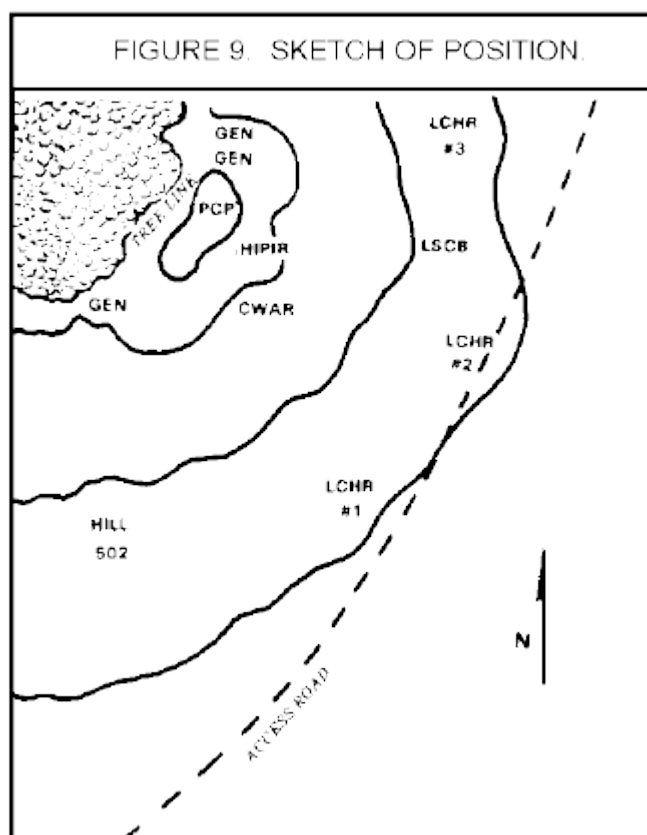
- Provides immediate access.
- Provides concealment.
- Affords good radar coverage.
- Meets equipment requirements (size, slope, firmness, et cetera).
- Is free of enemy ground forces and nuclear, biological, chemical (NBC) contamination.

The chemical and radiological survey team checked the immediate area and found it free of contamination. The platoon sergeant then led a security sweep of the area with the drivers, equipment guides, and NBC team. When satisfied that the area was clear, the platoon sergeant put a local security plan into effect. First, he placed one M60 machine gun, the 50-cal. machine gun, and one M203 grenade launcher in sites overlooking the main avenue of approach to the northeast. These weapons

were sited so that each could deliver supporting fires to the others. Next, he sited the other M60 machine gun and the other M203 grenade launcher at two sites overlooking the secondary road to the south, an alternate access into the position. Other personnel were directed to sites around the position to prevent gaps in the perimeter. Finally, he assigned each weapon a primary target line and sector of fire, directed that aiming stakes be emplaced, and that communications wire be strung to each weapon site.

While the platoon sergeant was implementing the local security plan, LT Smith made a quick survey of the position to place the major elements of his platoon. He decided to position the fire control section at the top of the hill. The firing section would be extended forward to maximum cable length. Specific positions in the wooded area would be selected for the platoon headquarters and support elements.

LT Smith used his driver to help him designate specific sites for each item of equipment. He sited the CWAR near the crest of the hill to provide good all-around coverage. Sites for the HIPIR and PCP were selected on high ground to minimize radar masking. The PCP would be sited so that the IFF antenna (mounted on top of the PCP) would be lower than the CWAR. The driver placed a marking stake at each site selected. At the CWAR site, LT Smith used the M2 aiming circle to determine azimuths to prominent terrain features. These features would be used as known data points (KDPs) to orient the system. Two terrain features were selected, one for a night KDP and one for a daytime KDP. See [Figure 9](#) for map sketch of the position.



Sites within the position are selected for-

- Hawk equipment (commanding terrain, dispersal to maximum cable length, concealment).

- Position security (supporting fire, primary target lines and sectors of fire, all-around defense perimeter, and communications).
- Support elements (cover, concealment, and dispersion).

Planning and Preparing for the Occupation. At 1825, LT Smith met with his platoon sergeant and directed him to plan and prepare for the occupation. LT Smith's instructions included, "...I am returning to our old position to lead the platoon back here. I want you to take the guides and prepare for the occupation of this position. Place one guide at the release point, which will be at the junction of the access road and Route 2. Make sure that the guide shows the vehicles where to turn off the main road. Have the rest of your guides meet the vehicles along the access road, where they will guide the vehicles to their proper sites. We will move under blackout conditions, so make sure that each guide has a flashlight with a blue filter, so that each driver can follow them in the dark. Use existing roads and trails as much as possible-keep new tracks to a minimum. Direct the vehicles into the treeline after they are unloaded and the equipment is correctly placed. The order of march will be..."

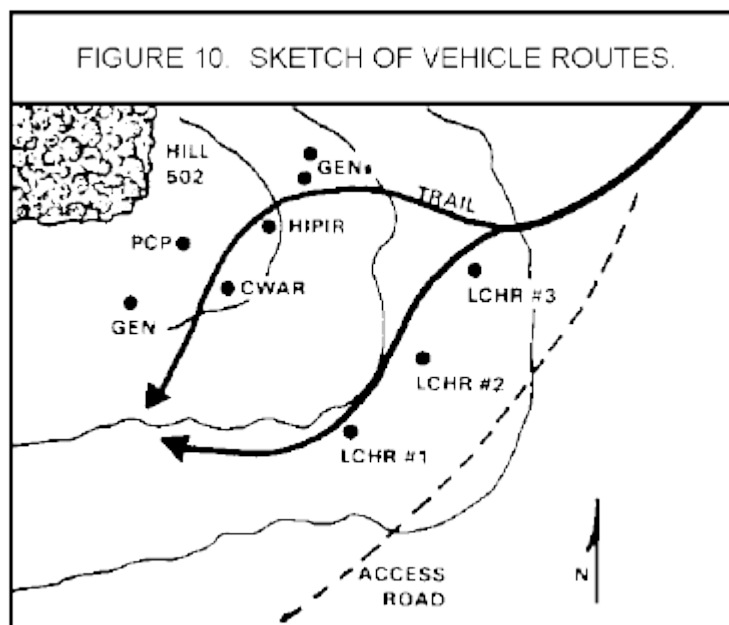
AFP Order of March

| <u>NO.</u> | <u>Vehicle</u> | <u>Load</u> | <u>Trailer</u> |
|------------|----------------|--|--|
| 1. | 1/4-ton | Platoon Leader | 1/4-ton |
| 2. | 1 1/4-ton | Communications Section | 3/4-ton |
| 3. | 2 1/2-ton | Missiles and Cables | CWAR |
| 4. | 2 1/2-ton | Engineer Section | 60-kw generator (spare) |
| 5. | 5-ton | Platoon Command Post (PCP) Equipment and Cables | PCP |
| 6. | 2 1/2-ton | Missiles, Launching Section Control Box, and Cables | Launcher #1 |
| 7. | 5-ton | Loader-Transporter | 60-kw generator, fire control section |
| 8. | 2 1/2-ton | Missiles and Cables | HIPIR |
| 9. | 2 1/2-ton | System Maintenance Section | 1 1/2-ton |
| 10. | 2 1/2-ton | Missiles | 60-kw generator firing section (FS) |
| 11. | 2 1/2-ton | Missiles and Cables | Launcher #2 |
| 12. | 2 1/2-ton | FS Equipment | 60-kw generator (FS) |
| 13. | 2 1/2-ton | Missiles and Cables | Launcher #3 |

LT Smith made the sequence of his march order so that it will allow orderly access into the area relative to different items of equipment and equipment sites and quickest emplacement times for critical items of equipment.

LT Smith departed for the battery after answering his platoon sergeant's questions. He returned over an alternate route that could be used for platoon movement if the primary route became unusable.

When LT Smith left, the platoon sergeant determined the route each vehicle would use to get into position. Each guide was assigned to direct one or more items of equipment. Guides were walked over the routes they would use to lead their assigned vehicles ([Figure 10](#)).



At 1900, while LT Smith was completing his reconnaissance, the assistant platoon leader started the AFP march order. Vehicles were loaded according to road movement loading plans, and were then connected to towed loads. LT Smith arrived back at the battery at 1920. He briefed the battery commander on his reconnaissance and position, and informed his key personnel of the order of march.

At this time, LT Smith and his platoon have completed all actions necessary to conduct the reconnaissance and select the position. Looking back, their actions included those listed below.

- Conducting the reconnaissance, selecting the position, and receiving the movement warning order.
 - Essential locations and times.
 - Reverse planning sequence.
- Issuing the platoon warning order.
 - Initial actions according to SOP.
 - Special instructions as necessary.
- Planning the reconnaissance.
 - Routes to be used and areas to be examined.
 - Composition of the reconnaissance party.

- Extra equipment required.
- Preparing for movement.
 - Brief personnel on the mission, plans, and requirements.
 - Instructions on operations in the absence of the leader.
- Reconnoitering and selecting the position.
 - Route reconnaissance.
 - Position reconnaissance.
 - Selection of site for equipment, position security, and support elements.
- Planning and preparing for the occupation.
 - Order of march.
 - Briefing and positioning of guides.

Movement of Platoon by Road

The next steps LT Smith and his platoon will take are listed below.

Equipment March Ordering and Loading. Equipment march ordering and loading began when the platoon was released from its AD mission-in this case, at 1900. However, certain items of equipment, not mission related, were loaded prior to mission release time. These items were listed in the platoon's SOP. The SOP also listed other actions to be accomplished before the movement, such as vehicle preoperation checks, refueling, et cetera. Hawk system equipment was prepared for travel according to the procedures listed in respective technical manuals.

March Column Assembly. At 1940, the section chiefs directed their vehicles into the order of march at the assembly area. LT Smith briefed the entire platoon on the new mission and movement, using the five-paragraph field order format. He included, "...The movement will be by SOP; blackout drive will be used. Convoy speed will be 15 mph. Even though I don't expect an air attack at night, I want an airguard in every vehicle." While LT Smith was briefing his platoon, his assistant platoon leader made a final safety check of all vehicles and towed loads.

Crossing the Start Point (SP). LT Smith, in the convoy lead vehicle, crossed the SP at exactly 1950. His remaining vehicles crossed the SP at intervals of 50 meters, according to SOP. The importance of crossing the SP right on time has been stressed by the battery commander, since other units were also using Route 2. LT Smith's convoy would have priority on Route 2 only during the period of his road clearance-from 1950 to 2150.

Road Movement. LT Smith's convoy proceeded along Route 2 exactly as planned. No problems were encountered along the route, largely because LT Smith had thoroughly familiarized his platoon with his convoy SOP and trained them in convoy operation. LT Smith's convoy SOP is shown in [Figures 11](#) and [12](#).

FIGURE 11. MOTOR MOVEMENT ANNEX TO FSOP.

ANNEX - (MOTOR MOVEMENTS) to AFP FSOP

28 NOV 84

1. PURPOSE: This annex prescribes standard procedures for motor convoy operations or vehicle movements.

2. RESPONSIBILITIES: The senior person on a vehicle is the vehicle commander. He is responsible to insure that all orders concerning the march are carried out. When two or more vehicles travel together, the senior person present will be the convoy commander. The convoy commander is responsible for the proper conduct and safety of all passengers and vehicles in the convoy. The convoy commander will brief all drivers prior to departure.

3. CONVOY OPERATION:

a. March Procedures.

(1) Rates: Unimproved roads — Day: 25 mph

Night: 10 mph.

Catchup speed — 5 mph above specified convoy speed.

(2) Halts: As designated.

b. Organization.

(1) Platoon serial position will be designated by the battery commander. Vehicle positioning within the platoon serial will be designated by the platoon leader.

(2) Normal time interval between serials will be 2 minutes.

c. Formation.

(1) Open column: 100 meters between vehicles, 12 vehicles per km.

(2) Closed column: 1 vehicle length between vehicles, 42 vehicles per km.

(3) Night column: 50 meters between vehicles, 24 vehicles per km.

(4) Infiltration: Maximum group of 10 vehicles, 200 meter intervals, 5 vehicles per km.

d. Routes and Guides.

(1) Routes will be as specified, based on recon and road clearance approval.

(2) Road guides or road markers will be posted along critical points of march between SP and RP. The convoy commander will insure that road guides are:

(a) Briefed on their responsibilities.

(b) Posted when required.

(c) Posted in pairs at night, with one member providing local security.

(d) Instructed on what vehicle will pick them up.

(3) Convoy commanders must be familiar with the route of march so that interposing of enemy guides or substitution of road markers will be detected.

e. Vehicle Preparation.

(1) Vehicle and trailer markings will be covered.

(2) Windshields will be folded down and covered. Mirrors, windshields, and lights will be covered whenever the vehicle is not in use.

FIGURE 11. MOTOR MOVEMENT ANNEX TO FSOP (continued).

(3) Vehicle cargo canvas **will** be removed and stored with bows unless the load requires covering. Canvas on trailers **will** be kept installed. Canvas cab covers **will** be removed.

(4) Lights **will** be off during daylight moves. Blackout drive **will** be used during night moves.

(5) Following items **will** be checked prior to movements and at halts:

(a) All vehicle and trailer lights.

(b) Vehicle and trailer brakes.

(c) Vehicle and trailer connections.

(d) Vehicle horn, oil, fuel, and coolant.

(6) Vehicles **will** be topped-off with fuel prior to and after every move.

f. Security.

(1) Vehicle drivers **will**, whenever possible, drive in the same tracks as the lead vehicle to reduce the possibility of detonating mines. Personnel **will** hold weapons at the ready to reduce reaction time in the event of ambush. If a vehicle drops out of the convoy, following vehicles **will** adjust their interval to conform to the established convoy distance.

(2) Each vehicle **will** have an airguard during movement. Airguards **will** continuously scan for enemy aircraft. If an enemy aircraft is spotted, the driver **will** be alerted and he **will** blow the vehicle horn (continuous blast). Upon hearing the warning, each driver **will** repeat it. Vehicles carrying Redeye team personnel **will** stop and Redeye teams **will** dismount and prepare to engage aircraft. The remainder of the convoy **will** continue the march, unless attacked. If attacked, each driver **will** move his vehicle off the road and into a concealed position (if possible). Vehicles **will** move off the road to alternate sides (herringbone). Personnel **will** dismount the vehicle and engage the aircraft with their assigned weapons. If machineguns are mounted on vehicles, they **will** remain mounted and manned.

(3) Personnel **will** dismount and assume defensive positions around vehicles during scheduled halts. Vehicle-mounted weapons **will** remain manned.

(4) Front and rear vehicles **will** be equipped with radios. The lead vehicle **will** maintain communications with the last vehicle to insure convoy control.

(5) If ambushed, the convoy **will** not stop to fight as long as it can move forward. If stopped, personnel **will** dismount and assume defensive positions while returning fire.

(6) Vehicles and trailers **will** be camouflaged during lengthy halts and when movement is concluded.

g. Reports. Trail vehicle **will** report control point (SP, checkpoints, RP) clearing times to lead vehicle.

h. Inspections. The platoon leader **will** insure that all vehicles, trailers, and loads are inspected prior to movement. Defects **will** be repaired immediately by the operator or battery maintenance personnel.

4. LOADING PLANS. Each vehicle and trailer **will** have a loading plan. Loading plans **will** be kept in vehicle log books. Loading plans **will** specify those items of cargo that can be loaded prior to mission release time. A loading plan format is attached as an appendix.


SMITH
LT AD

FIGURE 12. EXAMPLE OF LOADING PLAN.

| APPENDIX - (LOADING PLAN) to ANNEX - (MOTOR MOVEMENTS) | | | | | | | | | | |
|--|-------|------|-----|------|--------|-------|--------|--------|------|---------|
| VEHICLE # | MODEL | LINE | W/W | WD/W | LENGTH | WIDTH | HEIGHT | WEIGHT | CUBE | REMARKS |
| | | | | | | | | * | | |
| | | | | | | | | * | | |
| | | | | | | | | * | | |
| | | | | | | | | * | | |
| TOTAL of VEHICLE w/LOAD | | | | | | | | * | | |
| TOTAL of TOWED w/LOAD | | | | | | | | * | | |

DRIVER

ASST DRIVER

| NO | ITEM | WEIGHT |
|-------------------------|-------|--------|
| 1 | _____ | _____ |
| 2 | _____ | _____ |
| 3 | _____ | _____ |
| 4 | _____ | _____ |
| 5 | _____ | _____ |
| 6 | _____ | _____ |
| 7 | _____ | _____ |
| 8 | _____ | _____ |
| 9 | _____ | _____ |
| 10 | _____ | _____ |
| 11 | _____ | _____ |
| 12 | _____ | _____ |
| SUBTOTAL - Vehicle Load | | _____ |

CG-

AIR GUARD

CG-

| | | |
|-----------------------|-------|-------|
| A | _____ | |
| B | _____ | |
| C | _____ | |
| D | _____ | |
| E | _____ | |
| F | _____ | |
| G | _____ | |
| H | _____ | |
| I | _____ | |
| SUBTOTAL - Towed Load | | _____ |

NOTE * DO NOT include the weight of passenger, driver, asst driver or air guard in vehicle weights.

** Separate air guard will be used if available; if not available, assistant driver will serve as air guard.

Crossing the Release Point (RP). Having encountered no problems, the last vehicle in LT Smith's convoy crossed the RP at exactly 2150. The equipment guides, who had remained at the new location, met the vehicles and quickly guided them to the correct sites.

The AFP has now completed the actual road movement phase of the displacement. For review, their actions were to-

- Move the platoon by road.

- March order and load equipment-items not required for the AD mission, before mission release time; items required for the AD mission, after mission release time.
- Assemble the march column according to the march order, and issue operations order and any special instructions.
- Cross the SP at the correct time.
- Conduct the convoy movement according to the SOP and the tactical situation.
- Cross the RP at the correct time; vehicles are met and led to their correct sites by equipment guides.

Occupy, Organize, and Improve the Position

The AFP is now ready to begin the last phase of the displacement-occupying, organizing, and improving the position. This will include-

Establishing Local Security. Members of the reconnaissance party provided initial security at the new location. They selected perimeter defense positions, established sectors of fire and primary target lines, and prepared range cards. When LT Smith returned to the battery, his platoon sergeant continued to improve the local defense posture. This included preliminary construction of foxholes and bunker positions. As the convoy entered the new position, the platoon sergeant integrated all personnel not needed to prepare the system for operation into the perimeter defense.

Emplacing, Orienting, and Aligning the Hawk System. An equipment guide met each vehicle as it entered the new location and guided it to a site marked by LT Smith in his reconnaissance. After dropping their towed loads and unloading necessary cargo, the vehicles were dispersed inside the tree line. Crews immediately began to emplace the Hawk equipment. The CWAR, arriving early in the march sequence, was the first to complete emplacement. The CWAR crew then oriented the radar to the night KDP selected by LT Smith. As other items of equipment were emplaced, they soon were aligned to the CWAR. Missiles were loaded onto launchers, power was applied, and local operational checks were made at each item of equipment. (Procedures for orientation, alignment, and local operational checks are contained in appropriate technical manuals.) GEOREF was plotted on the PCP tactical display engagement control console (TDECC) and plotting board.

Establishing Communications with Higher Headquarters. Although listed here in priority, communications were maintained with higher headquarters throughout the movement. Both the AN/VRC-47 radio in LT Smith's jeep and the AN/PRC-77 radio (located in the convoy's trail vehicle) monitored the battery command net, FM. This net was also used to control the convoy movement. The additional receiver on the AN/VRC-47 radio was used to monitor the battalion command net, FM. The two AN/GRC-106 radios (in the platoon 1 1/4-ton vehicle) were used to monitor the battalion, Air Defense Command (ADC) and intelligence radar reporting (IRR) nets, AM.

While platoon personnel prepared the Hawk equipment for operation, members of the battery communications section emplaced and aligned the platoon's VHF/UHF multichannel antenna to the base platoon's AN/TRC-145. When this was done and a successful test "shot" was made between the base platoon and the AFP, the AFP was integrated into the battalion multichannel system.

Assuming Operational Status. When local checks were completed at each item of equipment, all items were integrated into the system. Integrated system checks were performed according to the procedures listed in appropriate technical manuals. When these checks were completed and the platoon was integrated into the battalion multichannel system, the AFP ran an integration check with the battalion's AN/TSQ-73. Finally, at 2305, the AFP assumed battle stations.

Improving the Area (Camouflage and Revetting). When LT Smith was satisfied with his platoon's operational status, he left the PCP and met with his platoon sergeant. The assistant platoon leader was left in charge of the system. LT Smith and the platoon sergeant began to organize and supervise improvement of the platoon's ground defense posture. Platoon personnel were directed to camouflage and revet equipment. (Hawk launchers were not revetted, due to the possibility of severe launcher damage from missile blast.) Additional fortifications and foxholes were constructed for perimeter defense positions. LT Smith inspected all areas to ensure that equipment was dispersed to the maximum extent possible. This included the support areas that the platoon sergeant had selected within the tree line. Improvements to the area were planned to continue as long as the position was occupied.

Selecting Secondary and/or Alternate Positions. After inspecting his platoon, LT Smith left the area to examine other locations identified earlier as possible alternate positions. These locations were 2 to 3 km away from the primary positions. Either could be occupied if the need arose to evacuate the present position. If LT Smith had received a warning order of another displacement, he would have performed a full reconnaissance of a specified secondary position. This not being necessary, LT Smith returned to the platoon area.

- Secondary positions are areas to which the unit displaces after receiving a new mission. Secondary position RSOPs are conducted only after receipt of a new warning order.
- Alternate positions are areas generally close to the primary position from which the unit can perform the original mission if the primary position becomes untenable or unsuitable. Tentative alternate positions are selected during the map reconnaissance of the primary position. RSOPs for alternate positions are conducted as soon as the unit has become operational at the primary position.

Preparing Radar Coverage Diagrams. While LT Smith was conducting his reconnaissance of alternate positions, the assistant platoon leader began to prepare radar coverage diagrams for the new position. Radar coverage diagrams are graphic representations of radar target detecting and tracking capabilities. They are used by defense planners to ensure that no gaps exist within the overall defense.

At 0600 the battery commander arrived to inspect the platoon's position. LT Smith escorted him through the platoon area and briefed him on the platoon's progress. In turn, the battery commander briefed LT Smith on his plans for continued administrative and logistic support, and commended him on a job well done.

Learning Event 7: RSOP SEQUENCE (PATRIOT UNIT)

As with all other ADA units, RSOP is a way of life with the Patriot units. As well as shooting and communicating, Patriot units are always moving to survive. This portion of the lesson discusses the purpose of Patriot RSOP and some considerations peculiar to the movement of Patriot units. Procedures

to conduct the RSOP are included. Although all position requirements are not detailed, those essential to the Patriot operations are. Requirements not detailed are those common to all Army units, including other types of ADA units.

Purpose

The purpose of a Patriot RSOP is to move a Patriot unit into a position from which it can accomplish its mission. For the Patriot firing battery, this is a position from which the unit is able to deliver effective air defense fires against the enemy air threat. For the battalion headquarters, this includes a position from which the battalion fire direction center can effectively control the air defense fire of each firing battery and the battalion support elements can adequately support the battalion. The Patriot unit moves to-

- Respond to a major shift of friendly fires.
- Reestablish defense of critical assets when they move.
- Respond to changes in mission assignments.
- Displace to alternate positions for survivability.
- Ensure overall defense integrity.

Patriot units are normally deployed as a battalion and, in many cases, are part of a large integrated air defense. As a result, when a firing battery conducts an RSOP, it is usually a part of a multilevel operation conducted by the air defense headquarters (usually an ADA brigade headquarters) and the Patriot battalion, as well as the firing battery. This involves locating, positioning, and siting.

Location. The location of the battalion is determined by either the defense or brigade commander. (The term location, when used in this context, specifies the establishment of a broad operating area.)

Positioning. The battery is positioned by the battalion commander. (The term positioned, when used in this context, specifies an exact area within the operating area.) The battalion commander will commonly designate a four- or six-digit grid coordinate for the battery commander. He will have some leeway in occupying the position, based on his ground reconnaissance.

Siting. Siting of equipment within the position is always accomplished by battery personnel. (The term siting, when used in this context, specifies the placement of individual items of equipment on selected spots within the position.)

Based on time available, locating, positioning, and siting can become very centralized (in a peacetime environment) or very decentralized (in a rapidly changing, fluid wartime environment). RSOP procedures discussed in this learning event are based on a wartime environment in which positioning is accomplished by battalion and siting is accomplished by battery personnel.

General Considerations

The procedures used by most Patriot units in performing RSOPs are almost identical to those performed by other units. Differences take into account the size and weight of Patriot equipment which

affect all aspects of a Patriot RSOP ([Figure 13](#)). They must also consider the tactical system which affects the positioning of the unit and the siting of each item of equipment.

| FIGURE 13. ROAD MARCH WEIGHTS AND DIMENSIONS. | | | | |
|--|---------------------------------|----------------------------|---------------------------|----------------------------|
| EQUIPMENT | WEIGHT kilograms (pounds) | HEIGHT meters (feet) | WIDTH meters (feet) | LENGTH meters (feet) |
| Radar set | 35,534 (78,008) | 3.61 (11.83) | 2.87 (9.42) | 16.83 (56.08) |
| Engagement control station | 16,863 (37,398) | 3.53 (11.58) | 2.62 (8.59) | 9.65 (31.67) |
| Antenna mast group | 14,742 (32,500) | 3.86 (12.6) | 2.44 (8.0) | 10.37 (34.0) |
| Electric power plant, with fuel trailer | 15,132 (32,500) | 2.63 (8.62) | 2.46 (8.07) | 14.38 (47.17) |
| Launching station | 35,721 (79,380) | 3.99 (13.1) | 2.87 (9.42) | 16.83 (56.08) |
| Information and coordination central with electric power unit | 19,862 (43,785) | 3.53 (11.58) | 2.49 (8.17) | 14.38 (47.17) |
| Communications relay group with electric power unit | 17,867 (39,388) | 3.53 (11.58) | 2.46 (8.07) | 14.38 (47.17) |
| Guided missile transporter | 25,465 (56,140) | 2.84 (9.33) | 2.44 (8.0) | 10.17 (33.38) |

Vehicle Size and Weight. Although the Patriot missile system is fully mobile with all tactical equipment mounted on wheeled trailers or vehicles, Patriot equipment is both oversize and heavy. For this reason, mobility is limited to road surfaces, bridges, and terrain that can be negotiated by those oversize vehicles. [Figure 13](#) provides a listing of weights and overall dimensions of Patriot equipment in a road march configuration. (All dimensions include authorized prime movers.)

Vehicle Weight Classifications. As can be seen by the road march weights and dimensions figure, personnel conducting either route reconnaissance or road movements and all vehicle drivers must be extremely conscious of the bridge classification system explained in FM 5-36. The Patriot vehicle expedient classifications for the major items of Patriot equipment are listed in [Figure 14](#). Calculations were made for vehicle class number being 85 percent of the gross curb weight.

| FIGURE 14. PATRIOT VEHICLE EXPEDIENT/ CLASSIFICATION GUIDE. | |
|--|-------------------------|
| <u>EQUIPMENT</u> | <u>CLASS NUMBER</u> |
| RADAR SET | 34 |
| ENGAGEMENT CONTROL STATION | 16 |
| ANTENNA MAST GROUP | 14 |
| ELECTRIC POWER PLANT WITH FUEL TRAILER | 14 |
| LAUNCHING STATION | 34 |
| INFORMATION AND COORDINATION CENTRAL WITH ELECTRIC POWER UNIT | 16 |
| COMMUNICATIONS RELAY GROUP WITH ELECTRIC POWER UNIT | 17 |
| GUIDED MISSILE TRANSPORTER | 24 |

Siting and Aligning. The effectiveness of a Patriot battalion depends on accurate siting and aligning of the battery radar sets and their respective launching stations. Accurate siting and aligning of the radar sets are essential for the battalion fire direction center (FDC) to correlate targets, perform site calibration, and to triangulate. Therefore, without accurate siting and aligning information, a battalion FDC cannot effectively manage the air battle. Further, without accurate siting and aligning information for the launching stations and their respective radar sets, a battery's ability to acquire missiles with the radar set is jeopardized. Thus, it is incumbent upon the commander to ensure the unit's proficiency in survey. The required siting and aligning accuracies for the radar set and launching station are in [Figure 15](#).

FIGURE 15. SITING AND ALIGNING ACCURACIES.

| | |
|--|--|
| RADAR SET | |
| SITE: | ± 40 METERS |
| ALTITUDE: | ± 10 METERS |
| AZIMUTH: | ± 2.8 MILS IF SURVEY LEVEL OF CONFIDENCE IS ENTERED INTO TAB 81 |
| | ± 5.8 MILS IF COMPASS LEVEL OF CONFIDENCE IS ENTERED INTO TAB 81 |
| ROLL: | $\pm .3$ MILS |
| CROSS ROLL: | $\pm .3$ MILS |
| LAUNCHING STATION (RELATIVE TO THE RADAR SET) | |
| SITE: | ± 10 METERS (± 10 PERCENT OF SEPARATION DISTANCE BETWEEN THE LAUNCHING STATION AND RADAR SET UNDER HASTY SITING CONDITIONS) |
| ALTITUDE: | ± 2 PERCENT OF SEPARATION DISTANCE BETWEEN THE LAUNCHING STATION AND RADAR SET |
| AZIMUTH: | ± 2 MILS |

Accurate determination of unit siting and aligning data is dependent upon the survey team's proficiency and is itself dependent upon survey team cohesion and frequent reiterative training. The formalization of survey duties into a unit TSOP is encouraged to reduce the time required for survey. The survey team members are part of the RSOP party. [Figure 16](#) shows the composition of a typical survey team.

FIGURE 16. COMPOSITION OF A TYPICAL SURVEY TEAM.

| | | |
|--|-------------------|----------|
| SURVEY OFFICER _____ | (ALSO RSOP DIC) | 1 |
| SURVEY NCOIC _____ | (TI-59 COMPUTER) | 1 |
| M2 AIMING CIRCLE OPERATOR _____ | | 1 |
| TAPE MAN _____ | | 2 |
| FORWARD STATION OPERATOR _____ | | 1 |
| REAR STATION OPERATOR _____ | (MANUAL COMPUTER) | 1 |
| | | 7 |

Based upon this evaluation, the survey officer decides upon the techniques to be used to conduct the survey. The deployment of the survey team may be in advance of the RSOP party's deployment. However, it normally deploys as part of the RSOP party since many personnel of the RSOP party perform two or more duties. To facilitate the survey planning, the battalion should acquire trigonometric lists of the survey control points in its area of operation. Trigonometric lists are generated and maintained by the survey section of corps and division field artillery battalions.

Deliberate survey-Given the importance of accurate siting and aligning data to Patriot operations, site survey by an engineer or field artillery survey team is desirable. However, due to the limited number of survey teams available in any theater, the Patriot batteries must perform the survey. The following deliberate survey techniques from FM 6-2 have been demonstrated to far exceed the above stated minimum accuracies when performed with an M2 aiming circle. Refer to FM 6-2 for detailed procedures.

- Traverse from a survey control point on the original or a second survey control point. Traverse provides both highly accurate siting and aligning data. Two methods of distance determination can be used with traverse. Horizontal taping is the most accurate and preferred method; however, with subtending accuracy is relative to the size of the measured target. Therefore, subtending a 60-meter baseline is much more accurate than subtending a 6-foot range pole.
- Simultaneous observation of a celestial body. Simultaneous observation of a celestial body provides the ability to transfer azimuth control. It requires a base station with an accurately aligned M2 aiming circle and radio communications between the base station and the flank (receiver) station.
- Polaris-Kochab. The Polaris-Kochab method of orienting the M2 aiming circle provides highly accurate alignment to true north.

Hasty siting and alignment methods can be used to acquire siting and aligning data for the radar sets and launching stations. However, these methods are subject to larger errors than obtained using deliberate survey techniques and do not provide a self-check for accuracy. Hasty methods should not be used unless the tactical situation does not provide the time for deliberate survey. Once emplaced with hasty techniques, the siting and aligning should be redetermined by deliberate survey as soon as possible. The hasty methods are-

- Resection (siting).
- Graphic resection (siting).
- Map spotting (siting).
- Declinated M2 aiming circle magnetic needle orientation (alignment).

Planning the survey includes an evaluation of-

- Time available.
- Terrain.
- Weather.
- Trigonometric list of the destination area.
- Ability to transfer azimuth control via radio with simultaneous observation.

Road and Terrain Competition

Two aspects often overlooked in RSOP planning are the competition between Patriot units and other units of the supported force for use of roads and key terrain. Due to the type, size, and weight of equipment, Patriot flexibility is limited. Even though the number of vehicles in a Patriot unit is comparatively small, use of road nets within corps and division areas almost always requires clearance from the area commander. In many cases, this will also be true in the communications zone.

Equally important is the coordination required to ensure that the positions selected for the battalion CP and firing batteries are available for occupation and use. Again, this requires close coordination with the area commanders. In a corps area, the corps air defense officer can assist in obtaining use of the required real estate, particularly if he is also the ADA brigade commander. When it is necessary to position a Patriot unit within a division area, the SHORAD battalion commander, division air defense officer, serves both as a point of contact and an ally in coordination with the division G3 for obtaining use of real estate. The Patriot ADA coordination officer usually establishes liaison with the division ADA officer for this purpose.

Normally, necessary coordination for road clearances and use of real estate is made at ADA brigade or battalion level. However, in a particularly fast-moving situation, a Patriot battery commander might have to make the necessary arrangements with the local commanders.

Moving to New Position

The procedures used to conduct RSOPs are SOP items and must be part of every unit's tactical preparation. These procedures must be thoroughly understood and practiced repeatedly by unit personnel. SOPs must cover both day and night movements and occupations of position. They should include loading plans for each way in which a unit might move-rail, sea, air, and road. The three RSOP phases are-

- Conduct the reconnaissance and select the position.
- Move the unit to the position.
- Occupy, organize, and improve the position.

Conduct the Reconnaissance and Select the Position

Basic actions required to conduct the reconnaissance and select the position include-

- Receiving the battalion movement warning order and issuing the battery movement warning order.
- Planning the reconnaissance.
- Preparing for movement.
- Reconnoitering and selecting the route and position.
- Planning and preparing for the occupation.

Receiving the Battalion Movement Warning Order and Issuing the Battery Movement Warning Order. The movement warning order is issued by the headquarters directing the move, modified as required at each command level, and issued to the next lower echelon. The movement warning order can be written or verbal and can be passed in person or over tactical communications. It must include (as a minimum) the new mission, the coordinates of the new position, and times of release for march order, crossing the start point (SP) and release point (RP), and assuming operational status at the new position.

Planning the Reconnaissance. Planning includes deciding-

- Routes to be used and positions to be examined.
- Composition of the reconnaissance party ([Figure 17](#)).
- Extra supplies and equipment needed.

| FIGURE 17. COMPOSITION OF A TYPICAL RSOP PARTY. | |
|---|----------|
| DIC (SURVEY) | 1 |
| NCOIC (SURVEY) | 1 |
| CREWMAN (NBC) | 1 |
| CREWMAN (MINE DETECTION, EQUIPMENT GUIDES) | 2 |
| CREWMAN (SECURITY, SURVEY) | 6 |
| DRIVERS (EQUIPMENT GUIDES, SURVEY) | 3 |
| | <hr/> 14 |

Normally, the RSOP party organization is provided in unit SOPs to fit most tactical situations. When issuing the battery warning order to the RSOP leader, the commander should direct any changes he feels necessary. The actions taken to form the RSOP party must not affect the mission capability of the unit. The [figure](#) above shows the makeup of a typical firing battery RSOP party. Those members of the party are identified. To provide for security while on the move and at the new position, the RSOP party should take three M249 machine guns.

Preparing for movement. Preparing for movement includes briefing personnel on the mission, plans, and requirements and instructions on operations to be conducted during the absence of the commander. All elements of the standard five-paragraph order should be addressed in the briefings. Non-mission-essential equipment may be broken down at this time.

Reconnoitering and Selecting the Route and Position. As soon as the RSOP preparations are completed, the leader departs with the reconnaissance party. He reconnoiters the routes to the new position and the position itself. Route reconnaissance includes-

- Ensuring that the route meets equipment, height, weight, and width requirements.
- Avoiding built-up areas when possible. If not possible, ensuring Patriot equipment can pass through such areas.
- Noting possible ambush locations.

- Marking necessary fuel and rest stop locations.
- Determining if road markers or road guides are needed.
- Finalizing the route.
- Selecting alternate routes.

Position reconnaissance ensures that the position-

- Provides immediate access.
- Provides concealment.
- Affords good radar coverage. (RSOP party prepares hasty coverage diagrams. See FM 44-15-1.)
- Meets equipment requirements (size, slope, firmness, et cetera.) Engineer support is requested, if necessary.
- Is free of enemy ground forces and NBC contamination.

Sites within the position are selected for-

- Patriot equipment, which requires commanding fields of view and fire, dispersal to maximum cable length, concealment, and relatively level terrain.
- Position security, which requires mutually supporting ground fire, cover and concealment, all-around defense perimeter, and communications.
- Support elements, which require cover, concealment, and dispersion.

Planning and Preparing for the Occupation. Based on sites selected for Patriot equipment, plans are made for organizing the order of march of the main body of the unit as well as briefing guides as to routes from the RP to each site. Sequence of the order of march must allow for-

- Orderly access to the area relative to different items of equipment and equipment sites.
- Quickest emplacement times for critical items of equipment.
- Convoy protection in case of air attack or ambush.

Move the Unit to the Position

Unit SOPs provide the details of Patriot road movements and should include responsibilities, road march procedures, convoy organization and formation, routes and guides, and both air and ground security measures to be taken during the road march. Significant events of road movement include-

- March ordering and loading equipment.
- Assembling the march column.
- Crossing the SP.
- Moving to the new position.
- Clearing the RP.

March Order and Load Equipment. The time when the Patriot unit is released from the air battle is called release time and is normally specified in the movement order. At release time, all mission-essential equipment can be march ordered. The march ordering of equipment is an activity in which significant amounts of time can be saved. This savings depends on the quality, type, and amount of crew drill training. The march order crew drill must be practiced regularly. Because many Patriot unit moves are conducted at night, crew drill must be practiced under blackout conditions. Remember, as much non-mission-essential equipment as possible should be march ordered and loaded prior to release time.

Assemble the March Column. The order of march is designated by the battery commander. This normally is an SOP item and is based on the factors in planning and preparing for occupation. Stinger crews are positioned in the convoy to provide weighted coverage toward the front and rear of the convoy. M60 machine guns are positioned to weight the front and rear of the convoy. M249 machine guns are positioned throughout the convoy. Vehicles must remain dispersed until shortly before the convoy departs. Frequently, vehicles will be dispersed into two nearby assembly areas-one for the maintenance platoon and the battery headquarters and one for the fire control platoon and the launcher platoon.

Prior to departure, the drivers and air guards of each vehicle are briefed on the route of march, actions to be taken upon ground or air attack, convoy speed, planned halts, and actions to be taken when vehicles break down. During the briefing, strip maps should be distributed.

Cross the SP. Because the unit will usually have road clearance only for the amount of time needed to road march to the RP, the unit should cross the SP at the time specified in the movement order. Crossing the SP too early or too late may result in two convoys competing for the use of the same route. The interval between vehicles is established at the SP.

Move to the New Position. Procedures in the unit's motor movements SOP should be followed. Since Patriot units in convoy are vulnerable to both ground and air attack, security procedures must be routinely practiced. Radio silence should be maintained to reduce the possibility of compromising the new unit position and of the enemy detecting and attacking the convoy.

Clear the RP. The RP must be cleared by the entire convoy at the correct time so that there are no road clearance conflicts with other convoys. The RSOP party equipment guides meet the battery vehicles and quickly guide them to the correct sites. First priority goes to siting mission-essential Patriot equipment.

Occupy, Organize, and Improve the Position

When the Patriot unit clears the RP, guides from the reconnaissance party lead each item of equipment to the site selected for it during the reconnaissance. The most critical task is to make the unit operational as soon as possible. Tasks that are accomplished during occupation and organization of a position are-

- Emplacing the Patriot system.
- Establishing communications.

- Assuming operational status.
- Improving the area (camouflage and revetting).
- Establishing local security.
- Selecting alternate positions.
- Preparing hasty radar coverage diagrams.

Emplacing the Patriot System. Once the main body reaches the position, all unit efforts are focused on rapidly attaining a minimum engagement capability. Teamwork is the key to becoming mission capable as rapidly as possible. The only personnel not assigned emplacement tasks are the security forces.

Establishing Communications. The battery normally monitors the battalion command net while on the move. However, every effort is made to maintain radio silence. Since communications systems are integral to the Patriot system, data link terminal and UHF communications are established simultaneously with the emplacement of the Patriot system. Priority of effort should go first to establishing data link terminal and then UHF communications. Data circuits are established prior to voice circuits.

Assuming Operational Status. All Patriot mission-essential equipment is emplaced and integrated with the engagement control station. The firing battery must also be integrated with the battalion FDC via the UHF system. The battery is then prepared to conduct ADA operations in an integrated battalion defense.

Improving the Area (Camouflaging and Revetting). Erecting camouflage systems will reduce the possibility of visual detection. Normally, positions will not be occupied long enough to make the construction of revetments worthwhile, unless engineer equipment is readily available. Improving the position should continue as long as the position is occupied.

Establishing Local Security. Members of the reconnaissance party provide initial security of the new position. They select perimeter defense positions, establish sectors of fire for M60 machine guns, and prepare range cards. All personnel not needed to prepare the Patriot system for operation are integrated into the ground defense. Once the unit becomes operational, members of the fire control and launcher platoons will replace many of those ground defense personnel from the maintenance platoon and battery headquarters. Stinger crews are deployed as the main body arrives. This results in one launching station taking more time to be emplaced; however, there is no adverse impact on the firing battery reaching minimal engagement capability.

Selecting Alternate Positions. Alternate positions are generally close to the primary position from which the unit can accomplish its mission if the primary position becomes untenable or unsuitable. Tentative alternate positions are selected during the map reconnaissance of the primary position. The RSOPs for the alternate positions are conducted as soon as the unit has become operational at the primary position.

Preparing Hasty Radar Coverage Diagrams. Radar coverage diagrams are graphic representations of radar target detecting and tracking capabilities. FM 44-15-1 explains how to prepare radar coverage diagrams. Hasty coverage diagrams are forwarded to the battalion S3 where they are evaluated to

determine if there are any gaps in the battalion defense. The masked terrain maps, which are generated by the Patriot system, support fire direction decisions; however, they do not support defense planning.

Learning Event 8: TACTICAL COVER AND DECEPTION

Camouflage

Avoiding visual and photographic detection requires a unit to practice camouflage, movement, sound, and light discipline. The key to successful camouflage lies in reducing contrasts with the surroundings by blending with the natural terrain. Camouflage netting with the right garnish, shape disruption of equipment through pattern painting, and the use of natural vegetation all combine to reduce the enemy's detection capability. Vehicle tracks must be hidden or wiped out. Movement within a position area must be kept to an absolute minimum. Freshly dug earth from field fortifications must be covered. Standardized emplacement patterns of fire unit equipment, such as the fan-shaped position of Hawk units or the linear positioning of Patriot units, must be avoided. However, irregular positions that affect weapon performance should not be used no matter how well they hide the equipment, and CPs and support elements should be kept small.

Movement

Importance of Movement. The most important action an ADA unit commander can take to avoid being attacked is to move the fire units as frequently as possible. Moves do not have to be long; distances of 1 to 2 km are enough to reduce the chance of being attacked. A move to another position should be planned so that the overall defense is not degraded. Therefore, movement times and air defense coverage must be considered when changing positions in response to enemy action. Whenever possible, movement should be made at night.

When to Move. A general rule to follow is to consider moving the ADA unit if any of the following actions occur:

- There has been a recent air reconnaissance by the enemy of your area.
- The ADA weapon has been fired.
- ADA units have been positioned for a period of time (C/V, 4 to 6 hours; Hawk, 8 to 12 hours; Patriot firing battery, 10 to 12 hours).

Other Measures. The effectiveness of other survival measures (camouflage, decoys, and short radiation times) may reduce the frequency of moves, but rarely should a Hawk or C/V unit commander keep his firing elements in the same location for longer than 24 hours.

Field Fortifications

During site selection, consideration must be given to the use of natural protection and concealment; however, its use should not hinder the unit in accomplishing its mission. Protecting ADA equipment through the construction of field fortifications is seriously limited because of the amount and size of the equipment, limited time, limited equipment, few personnel resources available to do the job, and the need to be able to engage aircraft attacking from any direction. Position improvements, such as sandbagging, should be made as long as the position is occupied.

Deception

Deception, in the form of establishing dummy or decoy positions, used with a movement policy, can fool the enemy on the actual number and specific location of weapons. Some dummy equipment for use in setting up a decoy position can be made by the unit and not all the battery equipment would have to be fabricated. For example, a Hawk battery dummy position would need facsimiles of an illuminator radar, launcher with missiles, and two radio antennas.

Any dummy equipment would have to be lightweight and prefabricated for ease of transport. When the battery moves to an alternate position, the dummy equipment, along with fortifications and camouflage, can be left at the previous position. Each battery should prepare several dummy/decoy sites during the night. This frequent movement prevents the enemy from pin-pointing the location of the real ADA unit. The degree of realism found in a decoy site is limited only by the ingenuity and resourcefulness of the commander and his battery personnel.

Dummy/decoy positions, combined with actual battery positions, can be used as flak traps. The dummy/decoy positions must be convincingly camouflaged with perhaps an item of equipment or a few personnel visible to air observers.

Construction of dummy equipment that incorporates realistic movement, such as a rotating radar antenna, use of explosives or small rocket motors to simulate missile launching, and the placement of a few soldiers and moving vehicles to lend the illusion of activity on the site, will also help decoy positions appear real.

If the threat is from high-altitude reconnaissance systems, more realism must be included in the decoy site. Infrared radiators should be used, since there will probably be a use for both photographic and infrared sensors against the defense. Another technique, to increase the credibility of decoy sites, is the use of radios that simulate the electronic signals surrounding a live-fire unit.

Summary

Agreed, the nature and configuration of ADA weapons make them highly vulnerable to discovery by the enemy. They are difficult to camouflage, and you certainly do not want any field fortifications that will mask the radars or impair the launchers. However, no matter how difficult, the unit should always try to hide its position from the enemy until it gets off a good shot or two, and then move on and try again-and again.

LESSON 1 PRACTICAL EXERCISE

Instructions The following items will test your understanding of the material covered in this lesson. There is only one correct answer for each item. When you have completed the exercise, check your answers with the answer key that follows. If you answer any item incorrectly, review that part of the lesson which contains the portion involved.

1. A Vulcan firing battery operating independently would normally displace on the order of the _____ commander.
 - ☐ a.battery
 - ☐ b.supported unit
 - ☐ c.parent unit
 - ☐ d.battalion
2. The most important action an ADA commander can take to avoid being attacked is to--
 - ☐ a.move his fire units as frequently as possible.
 - ☐ b.maintain radio silence.
 - ☐ c.build substantial fortifications to protect his launchers.
 - ☐ d.move only at night.
3. A rapid and effective RSOP usually requires a _____ effort.
 - ☐ a.controlled
 - ☐ b.decentralized
 - ☐ c.disregarded
 - ☐ d.centralized
4. Which type of reconnaissance, although still difficult, would be most appropriate when the maneuver plan includes terrain held by the enemy?
 - ☐ a.terrain
 - ☐ b.ground
 - ☐ c.aerial
 - ☐ d.map
5. Which of the following ADA systems should be moved every 8 to 12 hours?
 - ☐ a.Chaparral/Vulcan
 - ☐ b.Hawk
 - ☐ c.Patriot
 - ☐ d.Nike
6. Which of these positions should receive a high priority for improvement?
 - ☐ a.decoy
 - ☐ b.alternate
 - ☐ c.primary
 - ☐ d.dummy

7. When does the Hawk commander initiate action to prepare to move?

- ☐ a. upon receipt of a mission
- ☐ b. after receiving a warning order
- ☐ c. in accordance with SOP
- ☐ d. upon receipt of operations order

8. An effective dummy Hawk battery position would require facsimiles of a/an--

- ☐ a. illuminator radar and launcher with missiles.
- ☐ b. motor maintenance area.
- ☐ c. weapon system area.
- ☐ d. decoy.

9. If possible, C/V units should move every _____ hours.

- ☐ a. 2 to 6
- ☐ b. 4 to 6
- ☐ c. 10 to 12
- ☐ d. 24 to 28

10. Which of the following Hawk battery elements should be emplaced first during the occupation of position phase?

- ☐ a. Hawk equipment
- ☐ b. messenger center
- ☐ c. mess facility
- ☐ d. supply tent

11. What can an ADA unit use to most effectively avoid visual and photographic detection?

- ☐ a. camouflage
- ☐ b. regular positions
- ☐ c. radio silence
- ☐ d. deception

12. A factor that may determine the type of reconnaissance to be conducted in a given situation is the--

- ☐ a. weather.
- ☐ b. time.
- ☐ c. terrain.
- ☐ d. map.

13. Which of the following types of reconnaissance provides the most accurate information concerning actual terrain features?

- ☐ a. map
- ☐ b. aerial
- ☐ c. ground
- ☐ d. photographic

14. When an ADA firing battery is displaced, the equipment or installations that receive emplacement priority are the--

- ☐ a. health and welfare elements.
- ☐ b. supply and administration elements.
- ☐ c. primary weapon system.
- ☐ d. clutter coverage diagrams.

15. The location from which an ADA unit intends to accomplish its tactical mission is called the _____ position.

- ☐ a.primary
- ☐ b.tactical
- ☐ c.alternate
- ☐ d.supplementary

16. What type of reconnaissance provides the fastest way to see the terrain?

- ☐ a.map
- ☐ b.photographic
- ☐ c.aerial
- ☐ d.ground

17. The factor that will influence reconnaissance and planning the most is--

- ☐ a.ground security.
- ☐ b.vehicle equipment.
- ☐ c.missile system.
- ☐ d.current mission.

18. The use of _____ increases the credibility of decoy sites to simulate electronic signals.

- ☐ a.radars
- ☐ b.radios
- ☐ c.signals
- ☐ d.sensors

19. In SHORAD units, RSOP is normally conducted at _____ level.

- ☐ a.battalion
- ☐ b.brigade
- ☐ c.battery/platoon
- ☐ d.squad

20. During what sequence of action of an RSOP should one have answers pertaining to the mission, threat, terrain, weather, supplies, and equipment?

- ☐ a.receiving the order
- ☐ b.planning the reconnaissance
- ☐ c.planning the occupation
- ☐ d.receiving the movement order

21. The difference that is taken into account on the RSOP for a Patriot unit is _____ of equipment.

- ☐ a.items
- ☐ b.number
- ☐ c.size and weight
- ☐ d.height

22. Whenever possible, movement of an ADA unit should be--

- ☐ a.during hazy weather.
- ☐ b.at night.
- ☐ c.during the daytime.
- ☐ d.during twilight hours.

23. How many methods of reconnaissance are there?

- ☐ a.two
- ☐ b.three
- ☐ c.four
- ☐ d.five

24. Why is it important that Patriot systems maintain radio silence during the move?

- ☐ a.to prevent detection
- ☐ b.to leave lines open for emergency traffic
- ☐ c.to prevent compromising the new position
- ☐ d.to free personnel from radio operation duty

25. The sequence of events and procedures in conducting an RSOP is _____ for all ADA units.

- ☐ a.different
- ☐ b.essentially the same
- ☐ c.never the same
- ☐ d.not applicable